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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/677,895      | 10/02/2003  | Masaki Kameyama      | 3531.68507          | 9667             |

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EXAMINER

DAVIS, DAVID DONALD

ART UNIT PAPER NUMBER

2627

DATE MAILED: 09/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |   |  |
|------------------------------|--------------------------------------|---|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/677,895 | <b>Applicant(s)</b><br>KAMEYAMA, MASAKI |  |
|                              | <b>Examiner</b><br>David D. Davis    | <b>Art Unit</b><br>2627                 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-5, 7, 8, 10-13 and 15-20 is/are pending in the application.
- 4a) Of the above claim(s) 7 and 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-5, 10-13 and 15-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Election/Restrictions*

1. Claims 7 and 8 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Election was made **without** traverse in the reply filed on 12/02/2004.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2-5, 10-13 and 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuishi (JP 2000-306226) in view of Higashiya et al (JP 06-012807). Furuishi et al shows in figure 2 a head slider 21 having an air inlet end and an air outlet end. Slider 21 includes a front rail 29 disposed on a disk-facing surface adjacent to the air inlet end and having a flat air bearing surface for generating a floating force when the disk rotates. Figure 2 also shows a pair of rear rails 36 & 37 disposed on the disk-facing surface adjacent to the air outlet end and each having respective flat air bearing surfaces for generating a floating force when the disk rotates. Figure 2 additionally shows a groove 22 defined downstream of the front rail 29 for expanding air once compressed by the front rail 29 to develop a negative pressure. Further shown in figure 2 is a plurality of pads 33 disposed on the front rail 29 and at least one pad 49 of said pair of rear rails 36 & 37.

Furuishi is silent, however, as to the head slider having a cavity on the air outlet end near the electromagnetic transducer 35 between the transducer and a rearmost portion of the head slider.

Higashiya et al shows in 1 the head slider 10 having a cavity 1 on the air outlet end near a rearmost portion of the head. Higashiya et al shows in figure 1 the cavity 1, which has a curved surface. Higashiya et al discloses that the depth of the cavity is between 10 - 50  $\mu\text{m}$ , i.e. the depth of the cavity flows from approximation represented by:  $z=f(x) \bullet g(y)$  where  $z$  represents the depth of the cavity 1,  $x$  represents the position thereof in the longitudinal direction of the head slider 10, and  $y$  represents the position thereof in the transverse direction of the head slider 10. Higashiya et al discloses that the depth of the cavity is between 10 - 50  $\mu\text{m}$ , i.e. the cavity 1 is approximated by a curved surface which is represented by an equation which is similar to the equation except that at least one of  $f(x)$  and  $g(y)$  is replaced with a sine function.

Higashiya et al shows in figure 1 a portion of the head slider 10 that project from a disk-facing surface when a predetermined voltage is applied to the electromagnetic transducer. As the claims are directed to a head slider, per se, the method limitations appearing in line 2 of claim 4 has only been accorded weight to the extent that it affects the structure of the completed head slider. Higashiya et al also shows in figure 1 that an amount of material of the head slider would completely fill the cavity corresponding to a portion of the head slider which would project from the disk facing surface if the cavity were not present when a predetermined voltage is applied to the electromagnetic transducer.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide the slider of Koishi with a cavity as taught by Teruyoshi et al.

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The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to provide a slider with a cavity so as to catch “dust entering between a magnetic head slider and magnetic disk”. See the Abstract of Teruyoshi.

### *Response to Arguments*

4. Applicant's arguments filed August 11, 2006 have been fully considered but they are not persuasive. Again, with respect to traversal of the restriction requirement, applicant did not provide appropriate showings or evidence, as required by the MPEP, by way of a simple direct denial that the examination of the claims would not place an undue burden on the Examiner. Applicant merely provided a conclusory statement that the “claims share **several** features, and a search for one group **would probably** overlap or encompass a search for the other group.” Emphasis added. Whether or not claims share several features, which applicant failed to provide an appropriate showing of evidence of that assertion, is not a demonstration of a serious burden being lacking.

Applicant asserts on pages 14 and 15 that the combined references are silent as to the claimed limitation “said head slider having a cavity on the air outlet end near said electromagnetic transducer between the transducer and a **rearmost portion** of the head slider.” Emphasis added. It should be noted, since applicant appears to be suggesting this, that the claims require a rearmost portion not an edge, not the end, but a rearmost portion. In other words, the cavity is only required to be between the transducer and a portion, section or location **near or close to** the rear. It is understandable that applicant has imparted a narrow interpretation

to the limitation “a rearmost portion” because the figures of the instant application do show the cavity at the edge or end of the slider.

Curiously, applicant asserts on pages 18 and 19 that Higashiya only teaches the numerical depth of the recess not the relationship of the dimensions of the cavity. This assertion is puzzling. It sound like the applicant is suggestion that the dimensions of the cavity vary with the formula, as opposed, to the dimension of the cavity being determined or approximated by the formula, as required by the claims and disclosed by the specification. The specification, which the claims are to read in light of the specification, states in the ultimate paragraph on page 17 the depth of the cavity, and the Higashiya cavity depth is well within the range of the claimed formula and the disclosed formula.


Furthermore, applicant asserts on page 18 that “the Examiner still does not even assert that either reference teaches or suggest any such formulae for, or relationships between, the dimension of the cavity”. The claims set forth are product claims. As the claims are directed to a head slider having a cavity, per se, the formulae for, or relationships between, the dimensions of the cavity have only been accorded weight to the extent that it affects the structure of the completed a head slider having a cavity. Determination of the claims is based on product itself, even though such claims are limited and defined by formulae for, or relationships between, the dimensions of the cavity. Furthermore, formulae for, or relationships between, the dimension of the cavity note is reciting subject matter of claims in terms of how the dimensions of the cavity it is obtained in the product claim.

***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Davis whose telephone number is 571-272-7572. The examiner can normally be reached on Monday thru Friday between 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne D. Bost can be reached on 571-272-7023. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
David D. Davis  
Primary Examiner  
Art Unit 2627

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